

What is claimed is:

1 1. A method for identifying an antibacterial agent,
2 the method comprising:

3 (a) contacting an S-ynes polypeptide with a test
4 compound; and

5 (b) detecting an interaction of the test compound
6 with the S-ynes polypeptide, wherein an interaction
7 indicates that the test compound is an antibacterial agent.

1 2. A method of claim 1, further comprising:

2 (c) determining whether the test compound inhibits
3 growth of bacteria, relative to growth of bacteria cultured
4 in the absence of a test compound that interacts with the
5 polypeptide, wherein inhibition of growth indicates that the
6 test compound is an antibacterial agent.

1 3. A method of claim 1, wherein the polypeptide is
2 derived from a non-pathogenic *Streptococcus* strain.

1 4. A method of claim 1, wherein the polypeptide is
2 derived from a pathogenic *Streptococcus* strain.

1 5. A method of claim 1, wherein the test compound
2 is immobilized on a substrate, and interaction of the test
3 compound with the polypeptide is detected as immobilization
4 of the polypeptide on the immobilized test compound.

1 6. A method of claim 1, wherein the test compound
2 is selected from the group consisting of polypeptides,
3 ribonucleic acids, small molecules, and deoxyribonucleic
4 acids.

1 7. A method of claim 1, wherein:
2 the S-yneS polypeptide is provided as a fusion
3 protein comprising the S-yneS polypeptide fused to (i) a
4 transcription activation domain of a transcription factor or
5 (ii) a DNA-binding domain of a transcription factor;

6 the test compound is a fusion protein comprising the
7 polypeptide fused to (i) a transcription activation domain
8 of a transcription factor or (ii) a DNA-binding domain of a
9 transcription factor, to interact with the fusion protein;
10 and

11 interaction of the test compound with the
12 polypeptide is detected as reconstitution of a transcription
13 factor.

1 8. A pharmaceutical formulation comprising an
2 antibacterial agent identified by the method of claim 1, and
3 a pharmaceutically acceptable excipient.

1 9. A method for treating a bacterial infection in
2 an organism, the method comprising administering to the
3 organism a therapeutically effective amount of the
4 pharmaceutical formulation of claim 8.

1 10. A pharmaceutical formulation comprising an
2 antibacterial agent identified by the method of claim 4, and
3 a pharmaceutically acceptable excipient.

1 11. A method for treating a *Streptococcus* infection
2 in an organism, the method comprising administering to the
3 organism a therapeutically effective amount of the
4 pharmaceutical formulation of claim 10.

1 12. The method of claim 11, wherein the organism is
2 a human or rodent.

1 13. A method for identifying an antibacterial
2 agent, the method comprising:

3 (a) contacting an S-yneS polypeptide with a test
4 compound;

5 (b) detecting a decrease in function of the
6 polypeptide contacted with the test compound; and

7 (c) determining whether the test compound inhibits
8 growth of bacteria, relative to growth of bacteria cultured
9 in the absence of the test compound, wherein inhibition of
10 growth indicates that the test compound is an antibacterial
11 agent.

1 14. A method of claim 13, wherein the test compound
2 is selected from the group consisting of polypeptides,
3 ribonucleic acids, small molecules, and deoxyribonucleic
4 acids.

1 15. A method for identifying an antibacterial
2 agent, the method comprising:

3 (a) contacting a nucleic acid encoding S-yneS with a
4 test compound; and

5 (b) detecting an interaction of the test compound
6 with the nucleic acid, wherein an interaction indicates that
7 the test compound is an antibacterial agent.

1 16. A method of claim 15, further comprising:

2 (c) determining whether a test compound inhibits
3 growth of bacteria, relative to growth of bacteria cultured
4 in the absence of the test compound that interacts the

5 nucleic acid, wherein inhibition of growth indicates that
6 the test compound is an antibacterial agent.

1 17. A method of claim 15, wherein the test compound
2 is selected from the group consisting of polypeptides, small
3 molecules, ribonucleic acids, and deoxyribonucleic acids.

1 18. A method for identifying an antibacterial
2 agent, the method comprising:

3 (a) contacting an ortholog of an S-yneS polypeptide
4 with a test compound; and

5 (b) detecting an interaction of the test compound
6 with the ortholog, wherein an interaction indicates that the
7 test compound is an antibacterial agent.

1 19. A method of claim 18, further comprising:

2 (c) determining whether a test compound that
3 interacts with the ortholog inhibits growth of bacteria,
4 relative to growth of bacteria cultured in the absence of
5 the test compound, wherein inhibition of growth indicates
6 that the test compound is an antibacterial agent.

1 20. A method of claim 18, wherein the ortholog is
2 derived from a non-pathogenic bacterium.

1 21. A method of claim 18, wherein the ortholog is
2 derived from *Bacillus subtilis*.

1 22. A method of claim 21, wherein the ortholog is
2 B-yneS.

1 23. A method of claim 18, wherein the ortholog is
2 derived from a gram-positive bacterium.

1 24. A method of claim 18, wherein the ortholog is
2 derived from a pathogenic bacterium.

1 25. A method of claim 18, wherein the test compound
2 is immobilized on a substrate, and interaction of the test
3 compound with the ortholog is detected as immobilization of
4 the ortholog on the immobilized test compound.

1 26. A method of claim 18, wherein the test compound
2 is selected from the group consisting of polypeptides,
3 ribonucleic acids, small molecules, and deoxyribonucleic
4 acids.

1 27. A method of claim 18, wherein:
2 the ortholog is provided as a fusion protein
3 comprising the ortholog fused to (i) a transcription
4 activation domain of a transcription factor or (ii) a DNA-
5 binding domain of a transcription factor;

6 the test compound is a fusion protein comprising a
7 polypeptide fused to (i) a transcription activation domain
8 of a transcription factor or (ii) a DNA-binding domain of a
9 transcription factor, to interact with the ortholog; and

10 interaction of the test polypeptide of the test
11 compound with the ortholog is detected as reconstitution of
12 a transcription factor.

1 28. A method for identifying an antibacterial
2 agent, the method comprising:

3 (a) contacting an ortholog of an S-ynes polypeptide
4 with a test compound;

5 (b) detecting a decrease in function of the ortholog
6 contacted by the test compound; and

7 (c) determining whether the test compound inhibits
8 growth of bacteria, relative to growth of bacteria cultured
9 in the absence of the test compound, wherein inhibition of
10 growth indicates that the test compound is an antibacterial
11 agent.

1 29. The method of claim 28, wherein the test
2 compound is selected from the group consisting of
3 polypeptides, ribonucleic acids, small molecules, and
4 deoxyribonucleic acids.

1 30. A method of claim 28, wherein the ortholog is
2 B-yneS.

1 31. A method of claim 28, wherein the ortholog is
2 derived from a gram-positive bacterium.

1 32. A method of claim 28, wherein the ortholog is
2 derived from a pathogenic bacterium.

1 33. A method for identifying an antibacterial
2 agent, the method comprising:

3 (a) contacting a nucleic acid encoding an ortholog
4 of S-yneS; and

5 (b) detecting interaction of the test compound with
6 the nucleic acid, wherein interaction indicates that the
7 test compound is an antibacterial agent.

1 34. The method of claim 33, further comprising:

2 (c) determining whether the test compound inhibits
3 growth of bacteria, relative to growth of bacteria cultured
4 in the absence of the test compound, wherein inhibition of

5 growth indicates that the test compound is an antibacterial
6 agent.

1 35. The method of claim 33, wherein the test
2 compound is selected from the group consisting of
3 polypeptides, small molecules, ribonucleic acids, and
4 deoxyribonucleic acids. .

1 36. A method of claim 33, wherein the ortholog is
2 B-yneS.

1 37. A method of claim 33, wherein the ortholog is
2 derived from a pathogenic bacterium.

1 38. A method for treating a mammal having a
2 *Streptococcus pneumonia* infection, the method comprising
3 inhibiting the function of an S-yneS polypeptide in
4 *Streptococcus pneumonia* infecting the mammal.